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65565 7590 08/11/2008

SUGHRUE-265550
2100 PENNSYLVANIA AVE. NW
WASHINGTON, DC 20037-3213

EXAMINER

LEE, JAE W

ART UNIT

PAPER NUMBER

1656

DATE MAILED: 08/11/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,767

06/06/2005

Yuki Endo

Q88255

5081

TITLE OF INVENTION: PROTEIN WHICH BINDS TO AKT2

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	11/12/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,767	06/06/2005	Yuki Endo	Q88255	5081

TITLE OF INVENTION: PROTEIN WHICH BINDS TO AKT2

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	11/12/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEE, JAE W	1656	536-023100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,767	06/06/2005	Yuki Endo	Q88255	5081
65565	7590	08/11/2008	EXAMINER	
SUGHRUE-265550 2100 PENNSYLVANIA AVE. NW WASHINGTON, DC 20037-3213			LEE, JAE W	
			ART UNIT	PAPER NUMBER
			1656	
DATE MAILED: 08/11/2008				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 143 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 143 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No.

10/537,767

Examiner

JAE W. LEE

Applicant(s)

ENDO ET AL.

Art Unit

1656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 06/20/2008.
2. ☒ The allowed claim(s) is/are 1-5.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

EXAMINER'S AMENDMENT

An extension of time under 37 CFR 1.136(a) is required in order to make an examiner's amendment which places this application in condition for allowance. During a telephone conversation conducted on 07/31/2008, Susan Mack requested an extension of time for 2 MONTH(S) and authorized the Director to charge Deposit Account No. 19-4880 the required fee of \$ 450 for this extension and authorized the following examiner's amendment. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this Examiner's amendment was given in a telephone interview with Susan Mack on 07/24/2008.

The claims have been amended as follows:

Claim 5, replace "A cell" with "An isolated cell".

The following is an examiner's statement of reasons for allowance:

The prior art of record does not teach or fairly suggest an isolated polynucleotide encoding a polypeptide which comprises the amino acid sequence of SEQ ID NO: 2 or

Art Unit: 1652

SEQ ID NO: 4, which binds to Akt-2, the polypeptide sequences of SEQ ID NO: 2 and 4, an expression vector comprising said polynucleotide sequence, and an isolated cell transformed with said expression vector. The utility of the claimed invention resides on the fact that Applicants have discovered that an increased expression of the polypeptides as set forth in SEQ ID NOs: 2 and 4, interferes with the insulin signaling cascade downstream of Akt-2 also known as Protein Kinase B beta (PKB β) for the activation of GLUT4 (glucose transporter in muscle and adipose tissues) translocation from cytosol to cell membrane for increased sugar uptake. Thus, the claimed polypeptides, polynucleotides and cells have a potential use in the treatment of type 2 diabetes mellitus. The Examiner notes that closest prior art references are: [1] the polynucleotide as set forth in GenBank accession number BC049110 (publicly available on June of 2003), which encodes a protein that comprises SEQ ID NO: 2 except that it contains (a) substitutions at positions 37 and 457, and (b) a deletion from position 120 to position 125 (see the sequence alignment 1 below); [2] the polynucleotide as set forth in Genbank accession number AK128728 (publicly available on September of 2003), which encodes a protein that comprises SEQ ID NO: 4 except that it contains (a) a substitution at position 174 and (b) a deletion from position 1 to position 16 (see the sequence alignment 2 below); and [3] the polynucleotide as set forth in Genbank accession number AX714043 (publicly available on March of 2003), which encodes a protein that comprises all of SEQ ID NO: 4 except for a deletion from position 176 to position 243(splice variant of the polypeptide of SEQ ID NO: 4) (see the sequence alignment 3 below).

Art Unit: 1652

1. Sequence alignment for BC049110:

US-10-537-767-2 (1-573) x BC049110 (1-2738)

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Qy      1 MetAlaAlaValProProLeuArgAspArgLeuSerPheLeuHisArgLeuProIleLeu 20
      ||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      13 ATGCAGCTGTGCCGCCCTGCGGGACCGCTTGAGCTTCTTGCATAGGCTCCCCATCCTG 72

Qy      21 LeuLysGlyThrSerAspAspSerIleProCysProGlyTyrLeuPheGluGluIleAla 40
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db      73 TTGAAGGGGACCTCAGATGATAGCATCCCATGTCCAGGCTACCTGTTTTAAGAGATCGCC 132

Qy      41 LysIleSerHisGluSerLeuGlySerSerGlnCysLeuLeuGluTyrLeuLeuAsnArg 60
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     133 AAGATTTCCACGAGTCACTAGGCAGCAGCCAGTGCCTGCTGGAGTACCTCCTGAACCGT 192

Qy      61 LeuAspSerSerSerGlyHisValLysLeuLysValLeuLysIleLeuLeuTyrLeuCys 80
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     193 CTGGACAGCAGCTCCGGCCACGTGAAGCTCAAGGTGCTAAAGATCTTGCTTTACCTGTGT 252

Qy      81 GlyHisGlySerSerSerPheLeuLeuIleLeuArgArgAsnSerAlaLeuIleGlnGlu 100
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     253 GGTCAATGGCTCTTCTCTCTCTCTCTCATCTCAGGAGAACTCTGCTCTCATCCAAGAA 312

Qy     101 AlaThrAlaPheSerGlyProProAspProLeuHisGlyAsnSerLeuTyrGlnLysVal 120
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     313 GCCACGGCTTTCTCAGGGCCTCCAGATCTCTTACGGAAATAGCTTGTACCAGAAG--- 369

Qy     121 ArgAlaAlaAlaGlnAspLeuGlySerThrLeuPheSerAspAlaValProGlnProPro 140
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     370 -----GACCTGGGTAGCACCTGTCTCAGATGCCGTGCCACAGCCTCCA 414

Qy     141 SerGlnProProGlnIleProProProAlaGlyMetGlyAlaGlnAlaArgProLeuSer 160
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     415 TCGCAGCCACCTCAGATCCCGCCTCCCGCAGGCATGGGCGCCAGGCCAGACCTCTTAGT 474

Qy     161 AlaLeuGlnGlyPheGlyTyrThrLysGluSerSerArgThrGlySerAlaGlyGluThr 180
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     475 GCCCTGCAAGGCTTCGGCTACACGAAGGAGAGCAGCCGGACAGGCTCCCGAGGTGAAACC 534

Qy     181 PheLeuSerThrIleGlnArgAlaAlaGluValValAlaAsnAlaValArgProGlyPro 200
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     535 TTCTCTCCACCATCCAGAGGGCCGAGAGGTAGTGGCTAATGTGTGCGTCTTGGACCT 594

Qy     201 AspAsnProCysThrLysGlyProLeuProTyrGlyAspSerTyrGlnProAlaValThr 220
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     595 GATAATCCTTGTACCAAGGACCTTGCCGTATGGTGATTCTTACCAGCCTGCAGTGACA 654

Qy     221 ProSerAlaSerHisThrHisProAsnProGlyAsnLeuLeuProGlyAlaIleLeuGly 240
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     655 CCTTCAGTAGCCACACATCCCAACCCTGGGAATCTACTCCCTGGGGCCATCCTGGGG 714

Qy     241 AlaArgAlaValArgHisGlnProGlyGlnAlaGlyGlyGlyTrpAspGluLeuAspSer 260
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     715 GCCAGAGCTGTGAGACACCAGCCGGGCGAGGCTGGGGGCGGCTGGGATGAGCTGGACAGC 774

Qy     261 SerProSerSerGlnAsnSerSerCysThrSerAsnLeuSerArgAlaSerAspSerGly 280
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     775 AGTCCTAGTTCACAGAATTCTCTCTGCACAGCAACCTGAGCAGGGCCTCGGACTCGGGC 834

Qy     281 SerArgSerGlySerAspSerHisSerGlyThrSerArgGluProGlyAspLeuAlaGlu 300
      ||||||||||||||||||||||||||||||||||||||||||||||||||
Db     835 AGTCGGTCTGGCAGTGACAGCCACTCTGGCACAGCCGGGAGCCAGGCGACCTGGCAGAA 894

Qy     301 ArgAlaGluAlaThrProProAsnAspCysGlnGlnGluLeuAsnLeuValArgThrVal 320
      ||||||||||||||||||||||||||||||||||||||||||||||||||
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Art Unit: 1652

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Db      895 AGGGCTGAGGCCACGCCCCCAATGACTGCCAGCAAGAACTGAATCTAGTGAGGACTGTG 954
Qy      321 ThrGlnGlyProArgValPheLeuSerArgGluGluThrGlnHisPheIleLysGluCys 340
      |||
Db      955 ACACAGGGGCCACGTGTCTTCCTGAGCCGTGAGGAGACGCAGCACTTCATCAAAGAGTGT 1014
Qy      341 GlyLeuLeuAsnCysGluAlaValLeuGluLeuLeuLeuArgGlnLeuValGlyThrSer 360
      |||
Db      1015 GGCCTGCTCAACTGTGAGGCAGTGTGGAGCTGCTCCTGCGCCAGCTGGTCGGGACCAGT 1074
Qy      361 GluCysGluGlnMetArgAlaLeuCysAlaIleAlaSerPheGlySerAlaAspLeuLeu 380
      |||
Db      1075 GAGTGCGAGCAGATGAGGGCGCTGTGTGCCATCGCGTCCTTTGGGAGTGCTGACCTCCTG 1134
Qy      381 ProGlnGluHisValLeuLeuLeuCysArgGlnGlnLeuGlnGluLeuGlyAlaGlySer 400
      |||
Db      1135 CCTCAGGAGCACGTCTCTCCTGTGCCGACAGCAGCTGCAGGAACCTGGCGCGGGCAGC 1194
Qy      401 ProGlyProValThrAsnLysAlaThrLysIleLeuArgHisPheGluAlaSerCysGly 420
      |||
Db      1195 CCTGGACCTGTGACCAACAAAGCCACCAAGATCCTGAGACATTTGAAGCCTCCTGTGGA 1254
Qy      421 GlnGlnLeuProThrLeuArgLeuCysAlaGlnProAsnSerAlaAlaAlaProValGly 440
      |||
Db      1255 CAACAGCTCCCTACCCTAAGGCTCTGTGCCCAGCCCAACTCTGCAGCTGCCCTGTGGGC 1314
Qy      441 ProAlaAspLeuLeuThrSerProValProAlaProGlySerGlnValCysLeuGlnPro 460
      |||
Db      1315 CCAGCTGACCTGTGTGACCAGCCCCGTGCCGTGCCCTGGGAGCCAGGTCTTCCTCCAGCCT 1374
Qy      461 LeuSerSerAlaThrValValProArgSerProValLeuPheProSerProAsnThrLeu 480
      |||
Db      1375 CTCAGCTCCGCCACAGTGGTACCCAGGAGTCTGTGCTCTTTCCATCCCCCAATACCTTA 1434
Qy      481 ProProSerAlaLeuGluGluProSerGluValArgThrGlnLeuValCysSerSerGlu 500
      |||
Db      1435 CCTCCGTCTGCTCTGGAGGAGCCAGCGAGGTCCGAACCAATTGGTGTGTTCTAGTGAA 1494
Qy      501 GlnGlyThrGluSerGluGlnArgLeuGluAsnThrAspThrProGluAspSerSerSer 520
      |||
Db      1495 CAGGGGACAGAATCTGAGCAGAGGCTGGAGAACACAGACACCCAGAGGATAGCTCCAGT 1554
Qy      521 ProLeuProTrpSerProAsnSerLeuPheAlaGlyMetGluLeuValAlaCysProArg 540
      |||
Db      1555 CCGCTCCCGTGGAGTCCCAACTCTTTGTTTGCTGGCATGGAGCTGGTGGCTTGCCCCCGC 1614
Qy      541 LeuProCysHisSerSerGlnAspLeuGlnThrAspLeuGlnLysValThrThrGluAla 560
      |||
Db      1615 CTGCCTTGCCACAGCTCGCAGGACCTCCAGACAGATTTACAGAAGGTGACCACAGAAGCT 1674
Qy      561 ProValSerGluProSerAlaPheAlaPheLeuAsnMet 573
      |||
Db      1675 CCGGTTTCAGAGCCATCAGCTTTTGCATTTTAAACATG 1713

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2. Sequence alignment for AK128728:

US-10-537-767-4 (1-593) x AK128728 (1-3802)

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Qy      17 LeuProIleLeuLeuLysGlyThrSerAspAspAspValProCysProGlyTyrLeuPhe 36
      |||
Db      1420 CTCCCGATTCTCCTGAAGGGGACGTCCGATGATGATGTCCCGTGTCCGGGCTACCTGTTT 1479
Qy      37 GluGluIleAlaLysIleSerHisGluSerProGlySerSerGlnCysLeuLeuGluTyr 56
      |||
Db      1480 GAAGAGATTGCTAAATCTCCACGAGTCTCCGGGCAGCAGCCAGTGCCTGCTGGAGTAC 1539

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Qy	57	LeuLeuSerArgLeuHisSerSerSerSerGlyHisGlyLysLeuLysValLeuLysIleLeu	76
Db	1540	 CTCCTGAGCCGCCTGCACAGCAGCTCCGGCCACGGGAAGCTCAAGGTGCTGAAGATCTCTG	1599
Qy	77	LeuTyrLeuCysSerHisGlySerSerPhePheLeuLeuIleLeuLysArgAsnSerAla	96
Db	1600	 CTCTATCTGTGCAGCCACGGCTCCTCCTTCTTCTGCTCATCCTCAAACGCAACTCTGCC	1659
Qy	97	PheIleGlnGluAlaAlaAlaPheAlaGlyProProAspProLeuHisGlyAsnSerLeu	116
Db	1660	 TTCATCCAGGAAGCTGCAGCTTTTGCAGGGCCCCAGATCCTCTGCACGGGAACAGCTTG	1719
Qy	117	TyrGlnLysValArgAlaAlaAlaGlnAspLeuGlySerThrLeuPheSerAspThrVal	136
Db	1720	 TACCAGAAGGTTTCGCGCGGCCGCGCAGGACTTGGGGAGCACCCCTGTTCTCGGACACCGTG	1779
Qy	137	LeuProLeuAlaProSerGlnProLeuGlyThrProProAlaThrGlyMetGlySerGln	156
Db	1780	 TTGCCGCTGGCTCCCTCCCCAGCCTCTGGGGACCCCGCCTGCCACAGGCATGGGCTCCAG	1839
Qy	157	AlaArgProHisSerThrLeuGlnGlyPheGlyTyrSerLysGluHisGlyArgThrGly	176
Db	1840	 GCCAGGCCGACAGCACCCCTCCAGGGTTTCGGCTACAGCAAGGAACACGGCCACACGGGC	1899
Qy	177	SerAlaGlyGluAlaPheLeuSerThrIleGlnLysAlaAlaGluValValAlaSerAla	196
Db	1900	 TCGGCAGGCGAAGCCTTCTCTCCACCATTCCAGAAGGCCGAGAGGTGGTGGCCAGCGCC	1959
Qy	197	MetArgProGlyProGluSerProSerThrArgArgLeuLeuProArgGlyAspThrTyr	216
Db	1960	 ATGCGCCCCGGGCCGAGAGTCCAGTACCCGGAGGCTCCTGCCGCGGGGTGACACCTAC	2019
Qy	217	GlnProAlaMetMetProSerAlaSerHisGlyProProThrLeuGlyAsnLeuLeuPro	236
Db	2020	 CAGCCTGCCATGATGCCTTCAGCCAGCCACGGTCCCCAACCTGGGGAACCTACTCCCC	2079
Qy	237	GlyAlaIleProGlyProArgAlaValArgHisGlnProGlyGlnAlaGlyGlyGlyTrp	256
Db	2080	 GGGGCCATTCCAGGTCCCCGAGCTGTGAGGCATCAGCTGGGCAGGCCGAGGGGGCTGG	2139
Qy	257	AspGluLeuAspSerGlyProSerSerGlnAsnSerSerGlnAsnSerAspLeuSerArg	276
Db	2140	 GATGAGCTGGACAGCGGCCCCAGCTCTCAGAATTCTCCAGAACAGCGACCTGAGCAGG	2199
Qy	277	ValSerAspSerGlySerHisSerGlySerAspSerHisSerGlyAlaSerArgGluPro	296
Db	2200	 GTCTCGGACTCGGGCAGTCATTCCGGCAGCGACAGCCATTAGGGGCCAGCCGGGAGCCG	2259
Qy	297	GlyAspLeuAlaGluArgValGluValValAlaLeuSerAspCysGlnGlnGluLeuSer	316
Db	2260	 GGTGACCTGGCAGAAAGGTCGAGGTGGTGGCCCTGAGTGACTGTGACGAGGAGTTGAGC	2319
Qy	317	LeuValArgThrValThrArgGlyProArgAlaPheLeuSerArgGluGluAlaGlnHis	336
Db	2320	 TTGGTGAGGACTGTGACTCGGGGACCACGCGCCTTCTGAGCCGCGAGGAGGCACAGCAC	2379
Qy	337	PheIleLysAlaCysGlyLeuLeuAsnCysGluAlaValLeuGlnLeuLeuThrCysHis	356
Db	2380	 TTCATCAAAGCGTGTGGACTGTCTAACTGTGAGGCCGTGCTGCAGCTGCTGACCTGCCAC	2439
Qy	357	LeuArgGlyThrSerGluCysThrGlnLeuArgAlaLeuCysAlaIleAlaSerLeuGly	376
Db	2440	 CTGCGTGGGACCAGTGAATGCACGCAGCTGAGGGCGTGTGTGCCATCGCCTCCCTGGGG	2499
Qy	377	SerSerAspLeuLeuProGlnGluHisIleLeuLeuArgThrArgProTrpLeuGlnGlu	396

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Db      2500 AGCAGCGACCTCCTCCCCAGGAGCACATCCTCCTCCGCACCCGGCCGTGGCTGCAGGAG 2559
Qy      397 LeuSerMetGlySerProGlyProValThrAsnLysAlaThrLysIleLeuArgHisPhe 416
      |||
Db      2560 CTCAGCATGGGCAGCCCGGACCTGTGACCAACAAGGCCACCAAGATCCTGAGGCACTTT 2619
Qy      417 GluAlaSerCysGlyGlnLeuSerProAlaArgGlyThrSerAlaGluProGlyProThr 436
      |||
Db      2620 GAGGCCTCCTGTGGGCAGCTGTCCCTGCCCGGGGCACCTCAGCTGAGCCTGGCCCCACA 2679
Qy      437 AlaAlaLeuProGlyProSerAspLeuLeuThrAspAlaValProLeuProGlySerGln 456
      |||
Db      2680 GCCGCCCTCCCAGGCCATCTGACCTGTGACCGACGCTGTGCCTCTCCCTGGGAGCCAG 2739
Qy      457 ValPheLeuGlnProLeuSerSerThrProValSerSerArgSerProAlaProSerSer 476
      |||
Db      2740 GTCTTCCTGCAGCCTCTGAGTTCAACCCCGGTCTCGTCCCGAGCCCTGCTCCCTCATCT 2799
Qy      477 GlyMetProSerSerProValProThrProProProAspAlaSerProIleProAlaPro 496
      |||
Db      2800 GGGATGCCGTCCAGCCCTGTGCCACCCACCCACCCAGATGCCTCCCCATTCCAGCCCCC 2859
Qy      497 GlyAspProSerGluAlaGluAlaArgLeuAlaGluSerArgArgTrpArgProGluArg 516
      |||
Db      2860 GGAGACCCAGCGAGGCCGAGGCCAGACTGGCAGAAAGCAGGCGGTGGAGACCTGAACGG 2919
Qy      517 IleProGlyGlyThrAspSerProLysArgGlyProSerSerCysAlaTrpSerArgAsp 536
      |||
Db      2920 ATCCCGGGGGGCACGGACAGCCCAAGAGAGGCCCCAGCAGCTGTGCGTGGAGCCGCGAC 2979
Qy      537 SerLeuPheAlaGlyMetGluLeuValAlaCysProArgLeuValGlyAlaGlyAlaAla 556
      |||
Db      2980 TCCTTGTTTGCTGGCATGGAGCTGGTGGCCTGTCCCGCCTGGTGGGGGCTGGGGCTGCT 3039
Qy      557 AlaGlyGluSerCysProAspAlaProArgAlaProGlnThrSerSerGlnArgThrAla 576
      |||
Db      3040 GCGGGAGAGTCCTGTCTGTATGCTCCCGCGCCCCCAAACATCGTCCCAGAGGACAGCA 3099
Qy      577 AlaLysGluProProGlySerGluProSerAlaPheAlaPheLeuAsnAla 593
      |||
Db      3100 GCCAAAGAGCCTCCTGGCTCAGAGCCGTCAGCTTTCGCGTTCTGAACGCC 3150

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3. Sequence alignment for AX714043:

US-10-537-767-4 (1-593) x AX714043 (1-2249)

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Qy      1 MetAlaAlaAlaProProLeuArgAspArgLeuSerPheLeuHisArgLeuProIleLeu 20
      |||
Db      23 ATGGCTGCCGCGCCGCGCTACGGGACCGCTGAGCTTTCTACACCGGCTCCCGATTCTC 82
Qy      21 LeuLysGlyThrSerAspAspAspValProCysProGlyTyrLeuPheGluGluIleAla 40
      |||
Db      83 CTGAAGGGGACGTCGATGATGATGTCCCGTGTCCGGGCTACCTGTTTGAAGAGATTGCT 142
Qy      41 LysIleSerHisGluSerProGlySerSerGlnCysLeuLeuGluTyrLeuLeuSerArg 60
      |||
Db      143 AAAATCTCCCACGAGTCTCCGGGCAGCAGCCAGTGCCTGCTGGAGTACCTCCTGAGCCGC 202
Qy      61 LeuHisSerSerSerGlyHisGlyLysLeuLysValLeuLysIleLeuLeuTyrLeuCys 80
      |||
Db      203 CTGCACAGCAGCTCCGGCCACGGGAAGCTCAAGGTGCTGAAGATCCTGCTCTATCTGTGC 262

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Qy	81	SerHisGlySerSerPhePheLeuLeuIleLeuLysArgAsnSerAlaPheIleGlnGlu	100
Db	263	 AGCCACGGCTCCTCCTTCTTCTGCTCATCCTCAAACGCAACTCTGCCTTCATCCAGGAA	322
Qy	101	AlaAlaAlaPheAlaGlyProProAspProLeuHisGlyAsnSerLeuTyrGlnLysVal	120
Db	323	 GCTGCAGCTTTTGCAGGGCCCCAGATCCTCTGCACGGGAACAGCTTGTACCAGAAGGTT	382
Qy	121	ArgAlaAlaAlaGlnAspLeuGlySerThrLeuPheSerAspThrValLeuProLeuAla	140
Db	383	 CGCGCGGCCGCGCAGGACTTGGGGAGCACCCCTGTTCTCGGACACCGTGTTCGCGCTGGCT	442
Qy	141	ProSerGlnProLeuGlyThrProProAlaThrGlyMetGlySerGlnAlaArgProHis	160
Db	443	 CCCTCCCAGCCTCTGGGGACCCGCGCTGCCACAGGCATGGGCTCCCAGGCCAGGCCGCAC	502
Qy	161	SerThrLeuGlnGlyPheGlyTyrSerLysGluHisGlyArgThrGlySerAlaGlyGlu	180
Db	503	 AGCACCTCCAGGTTTCGGCTACAGCAAGGAACACGCCGCACG-----	547
Qy	181	AlaPheLeuSerThrIleGlnLysAlaAlaGluValValAlaSerAlaMetArgProGly	200
Db	547	-----	547
Qy	201	ProGluSerProSerThrArgArgLeuLeuProArgGlyAspThrTyrGlnProAlaMet	220
Db	547	-----	547
Qy	221	MetProSerAlaSerHisGlyProProThrLeuGlyAsnLeuLeuProGlyAlaIlePro	240
Db	547	-----	547
Qy	241	GlyProArgAlaValArgHisGlnProGlyGlnAlaGlyGlyGlyTrpAspGluLeuAsp	260
Db	548	 -----GCTGTGAGGCATCAGCCTGGGCAGGCCGAGGGGGCTGGGATGAGCTGGAC	598
Qy	261	SerGlyProSerSerGlnAsnSerSerGlnAsnSerAspLeuSerArgValSerAspSer	280
Db	599	 AGCGGCCCCAGCTCTCAGAATTCTCCAGAACAGTGACCTGAGCAGGGTCTCGGACTCG	658
Qy	281	GlySerHisSerGlySerAspSerHisSerGlyAlaSerArgGluProGlyAspLeuAla	300
Db	659	 GGCAGTCATTCCGGCAGCGACAGCCATTACGGGGCCAGCCGGGAGCCGGGTGACCTGGCA	718
Qy	301	GluArgValGluValValAlaLeuSerAspCysGlnGlnGluLeuSerLeuValArgThr	320
Db	719	 GAAAGGGTCGAGGTGGTGGCCCTGAGTGACTGTCTACGAGGAGTTGAGCTTGGTGAGGACT	778
Qy	321	ValThrArgGlyProArgAlaPheLeuSerArgGluGluAlaGlnHisPheIleLysAla	340
Db	779	 GTGACTCGGGGACCACGCGCCTTCTCTGAGCCGCGAGGAGGCACAGCACTTCATCAAAGCG	838
Qy	341	CysGlyLeuLeuAsnCysGluAlaValLeuGlnLeuLeuThrCysHisLeuArgGlyThr	360
Db	839	 TGTGGACTGCTCAACTGTGAGGCCGTGCTGCAGCTGCTGACCTGCCACCTGCGTGGGACC	898
Qy	361	SerGluCysThrGlnLeuArgAlaLeuCysAlaIleAlaSerLeuGlySerSerAspLeu	380
Db	899	 AGTGAATGCACGCAGCTGAGGGCGCTGTGTGCCATCGCTCCCTGGGGAGCAGCGACCTC	958
Qy	381	LeuProGlnGluHisIleLeuLeuArgThrArgProTrpLeuGlnGluLeuSerMetGly	400
Db	959	 CTCCCCCAGGAGCACATCTCTCCGCACCCGCGCGTGGCTGCAGGAGCTCAGCATGGGC	1018
Qy	401	SerProGlyProValThrAsnLysAlaThrLysIleLeuArgHisPheGluAlaSerCys	420
Db	1019	 AGCCCCGGGACCTGTGACCAACAAGGCCACCAAGATCCTGAGGCACCTTTGAGGCCTCCTGT	1078

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Qy      421 GlyGlnLeuSerProAlaArgGlyThrSerAlaGluProGlyProThrAlaAlaLeuPro 440
      |||
Db      1079 GGGCAGCTGTCCCTGCCCGGGGACCTCAGCTGAGCCTGGCCCCACAGCCGCCCTCCCA 1138

Qy      441 GlyProSerAspLeuLeuThrAspAlaValProLeuProGlySerGlnValPheLeuGln 460
      |||
Db      1139 GGCCCATCTGACCTGCTGACCGACGCTGTGCCTCTCCCTGGGAGCCAGGTCTTCCTGCAG 1198

Qy      461 ProLeuSerSerThrProValSerSerArgSerProAlaProSerSerGlyMetProSer 480
      |||
Db      1199 CCTCTGAGTTCAACCCCGGTCTCGTCCCGAGCCCTGCTCCCTCATCTGGGATGCCGTCC 1258

Qy      481 SerProValProThrProProProAspAlaSerProIleProAlaProGlyAspProSer 500
      |||
Db      1259 AGCCCTGTGCCCCACCCACCCACCATGCTCCCCATTCCAGCCCCGGAGACCCAGC 1318

Qy      501 GluAlaGluAlaArgLeuAlaGluSerArgArgTrpArgProGluArgIleProGlyGly 520
      |||
Db      1319 GAGCCCGAGGCCAGACTGGCAGAAAGCAGGCGGTGGAGACCTGAACGGATCCCAGGGGGC 1378

Qy      521 ThrAspSerProLysArgGlyProSerSerCysAlaTrpSerArgAspSerLeuPheAla 540
      |||
Db      1379 ACGGACAGCCCAAAGAGAGGCCCCAGCAGCTGTGCGTGGAGCCGCGACTCCTTGTGTGCT 1438

Qy      541 GlyMetGluLeuValAlaCysProArgLeuValGlyAlaGlyAlaAlaAlaGlyGluSer 560
      |||
Db      1439 GGCTGGAGCTGGTGGCCTGTCCCGCCTGGTGGGGGCTGGGGCTGCTGCGGAGAGTCC 1498

Qy      561 CysProAspAlaProArgAlaProGlnThrSerSerGlnArgThrAlaAlaLysGluPro 580
      |||
Db      1499 TGTCTGATGCTCCCCGCGCCCCCAAACATCGTCCAGAGGACAGCAGCCAAAGAGCCT 1558

Qy      581 ProGlySerGluProSerAlaPheAlaPheLeuAsnAla 593
      |||
Db      1559 CCTGGCTCAGACCGTCAGCTTTCGCGTTCCTGAACGCC 1597

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Claims 1-5 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jae W. Lee whose telephone number is 571-272-9949. The examiner can normally be reached between 9:00 to 5:00 on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathleen Kerr Bragdon can be reached on 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JAE W LEE/

Examiner, Art Unit 1656

/Delia M. Ramirez/

Delia M. Ramirez, Ph.D.
Primary Examiner, Art Unit 1652